Service Schematics

Introduction

NOKIA 7710

RM-12

Exploded view and component disposal

IMPORTANT:

This document is intended for use by authorized NOKIA service centers only.

"Service Schematics" was created with focus on customer care.
The purpose of this document is to provide further technical repair information for NOKIA mobile phones on Level 3/4 service activities.
It contains additional information such as e.g. "Component finder", "Frequency band table" or "Antenna switch table".
The "Signal overview" page gives a good and fast overview about the most important signals and voltages on board.
Saving process time and improving the repair quality is the aim of this document.
It is to be used additionally to the service manual and other training or service information such as Service Bulletins.

All measurements were made using following equipment:

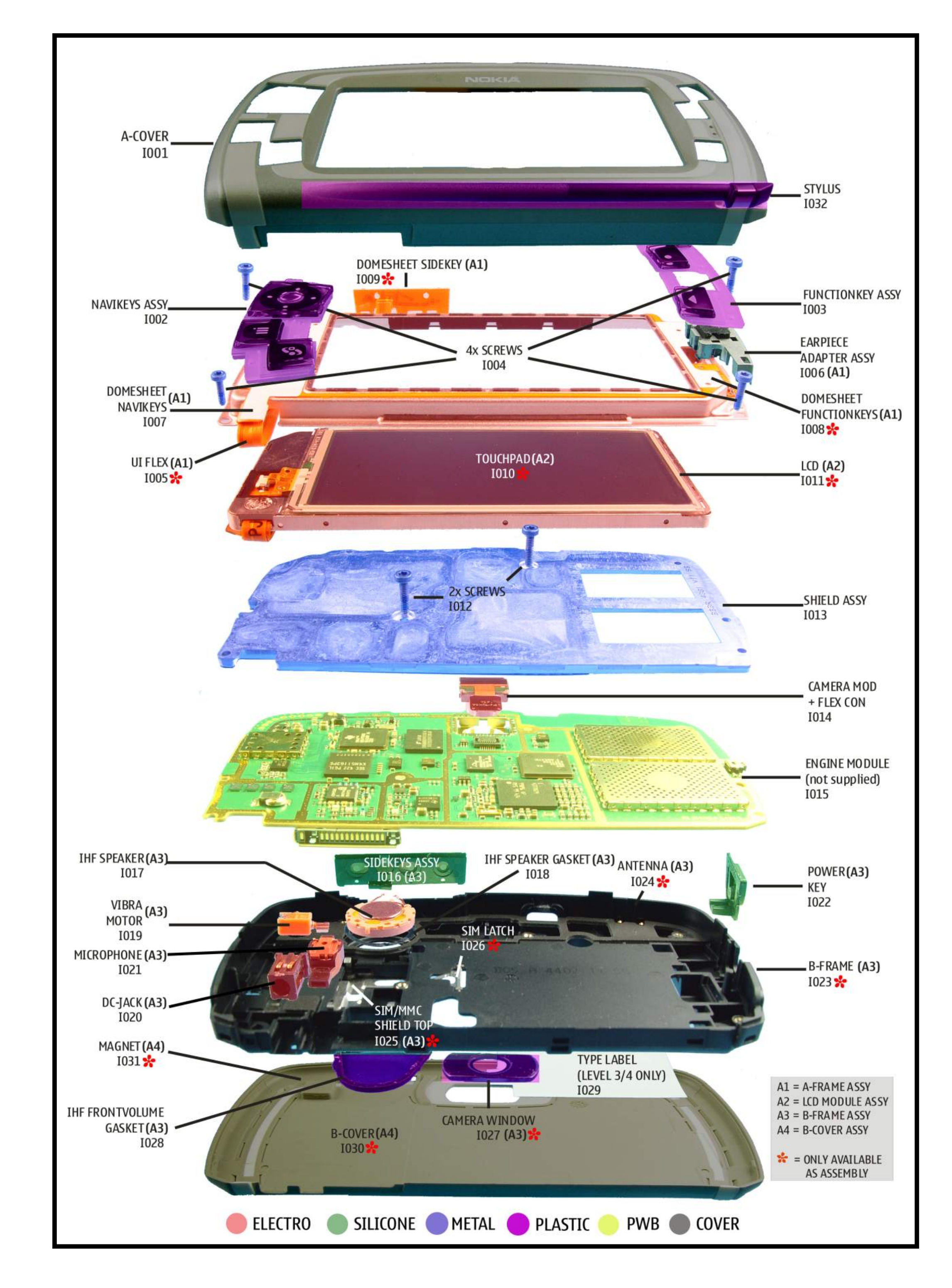
Nokia repair SW	:	Phoenix version 2004.39.7.70
Oscilloscope	:	Fluke PM 3380A/B
Spectrum Analyzer	:	Advantest R3162 with an analog probe
RF-Generator / GSM Tester	:	Rhode & Schwarz CMU 200
Multimeter	:	Fluke 73 Series II

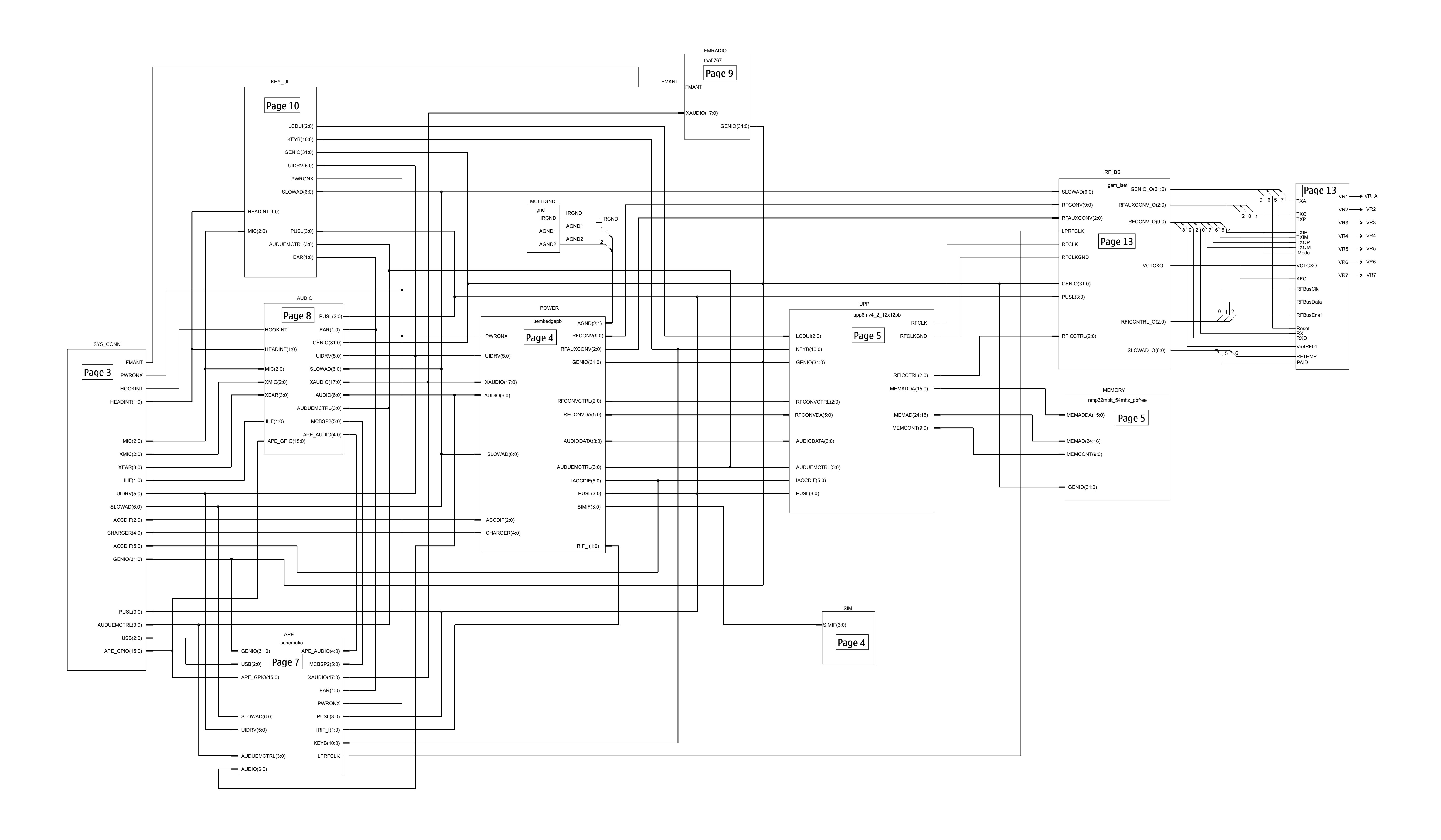
While every endeavour has been made to ensure the accuracy of this document, some errors may exist. If the reader finds any errors, NOKIA should be notified in writing.

Please send E-Mail to: training.sace@nokia.com

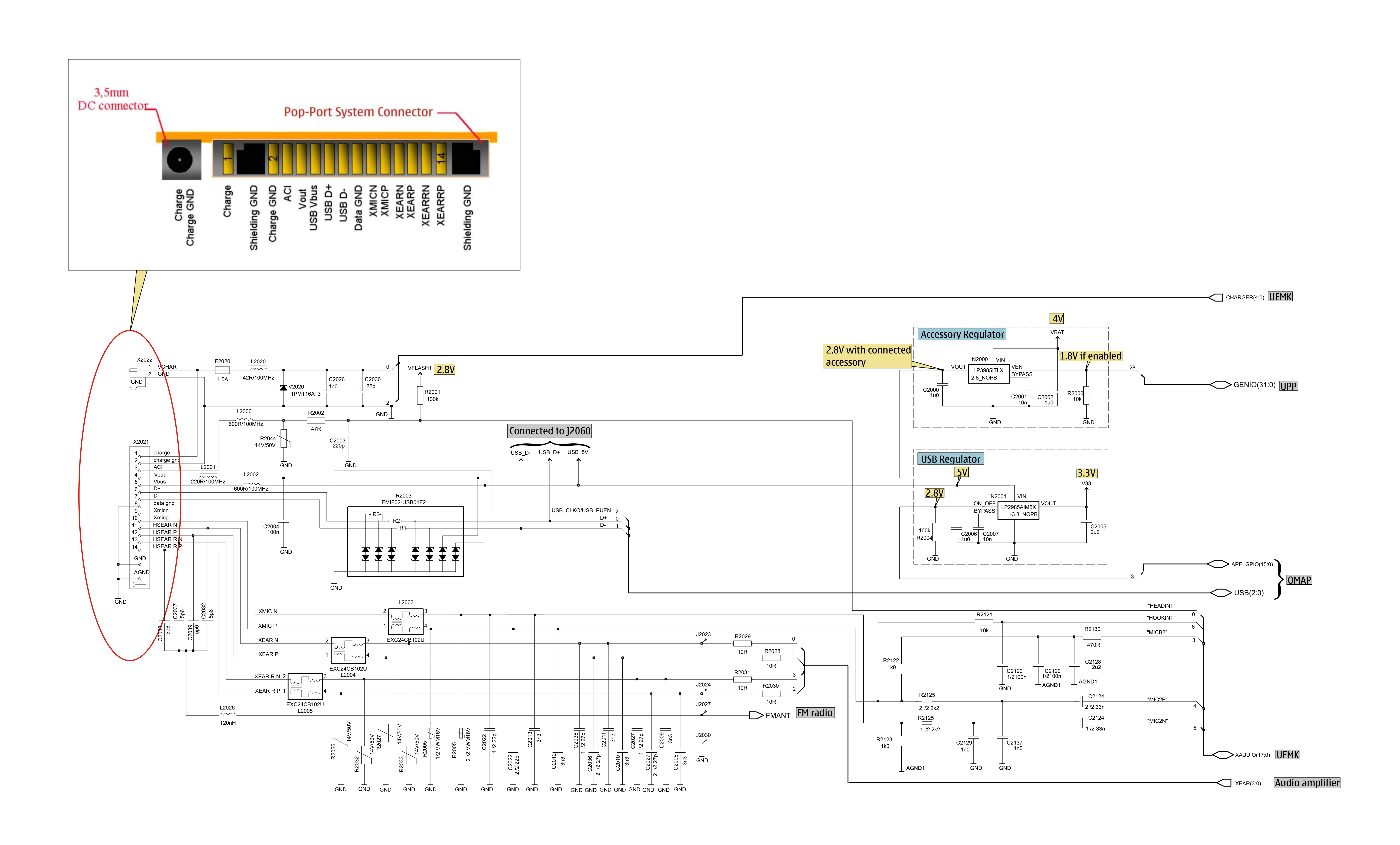


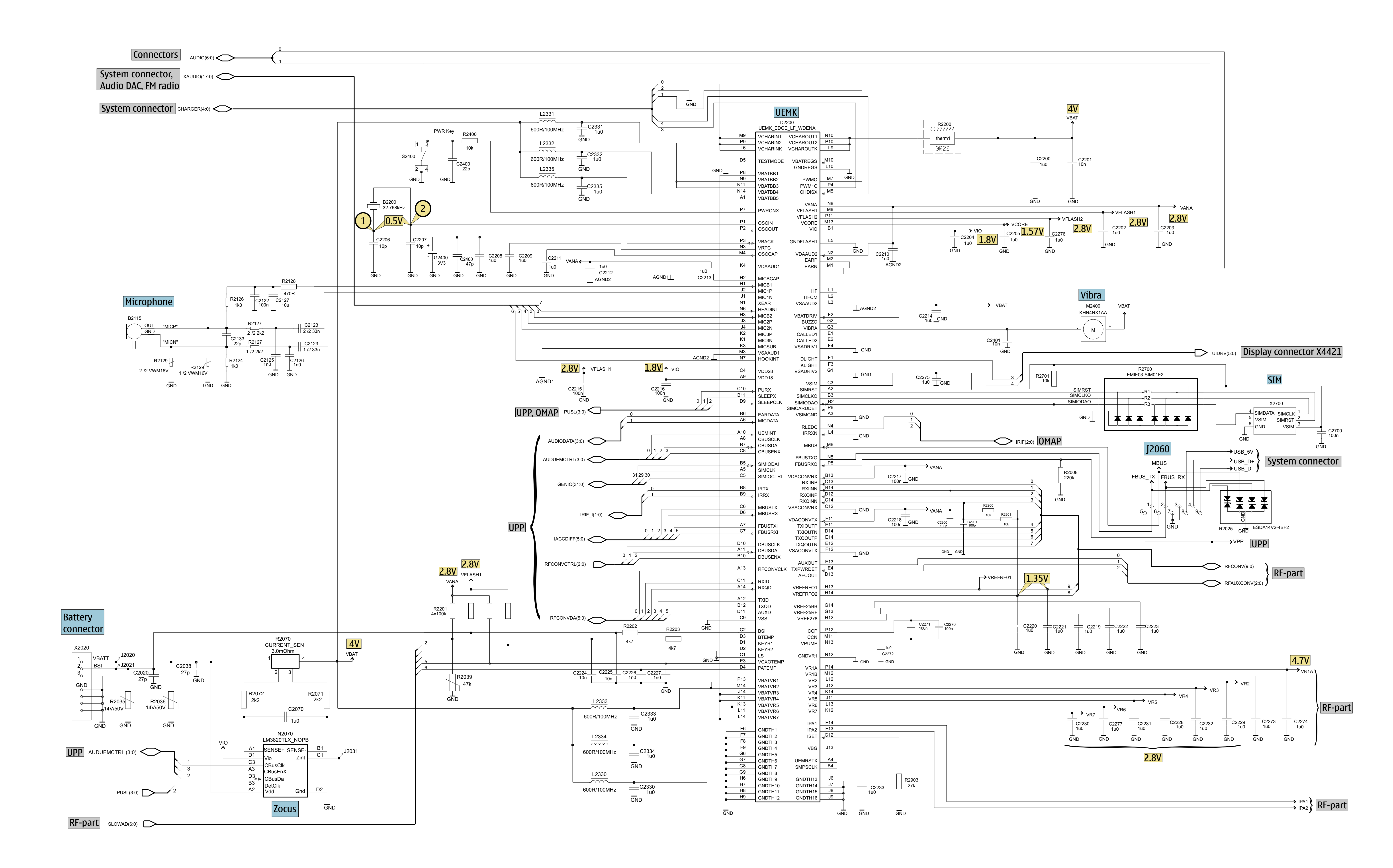
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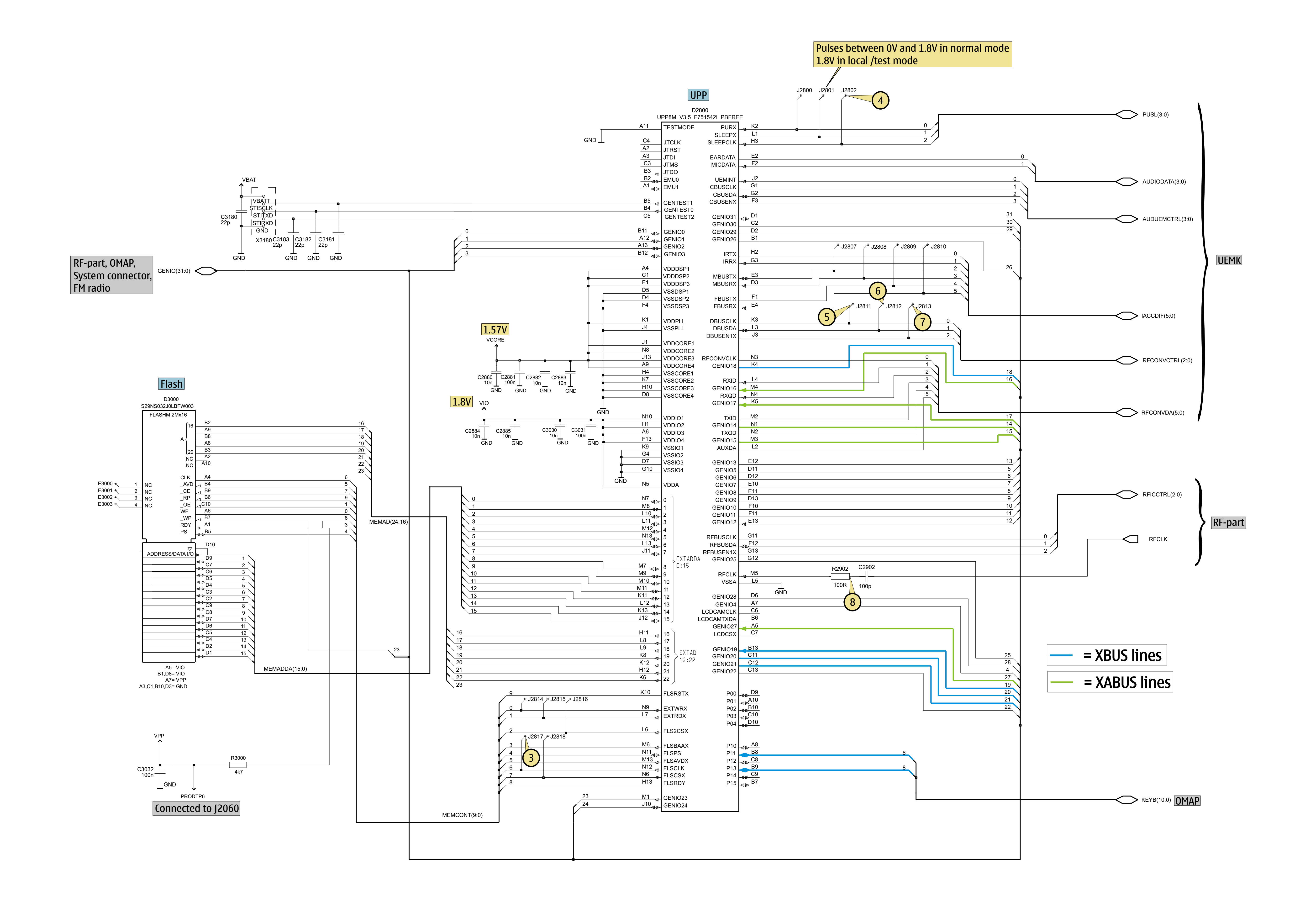


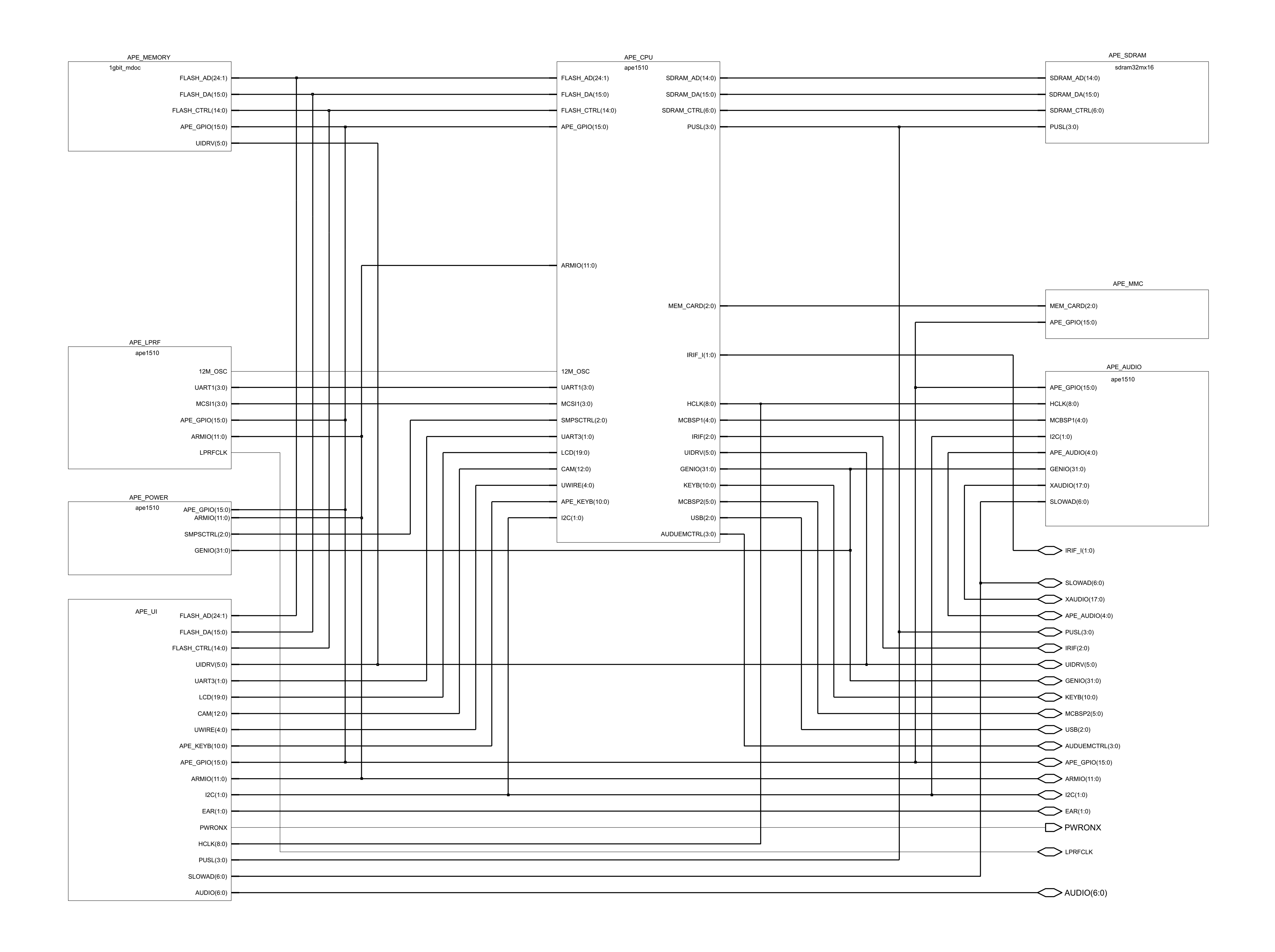


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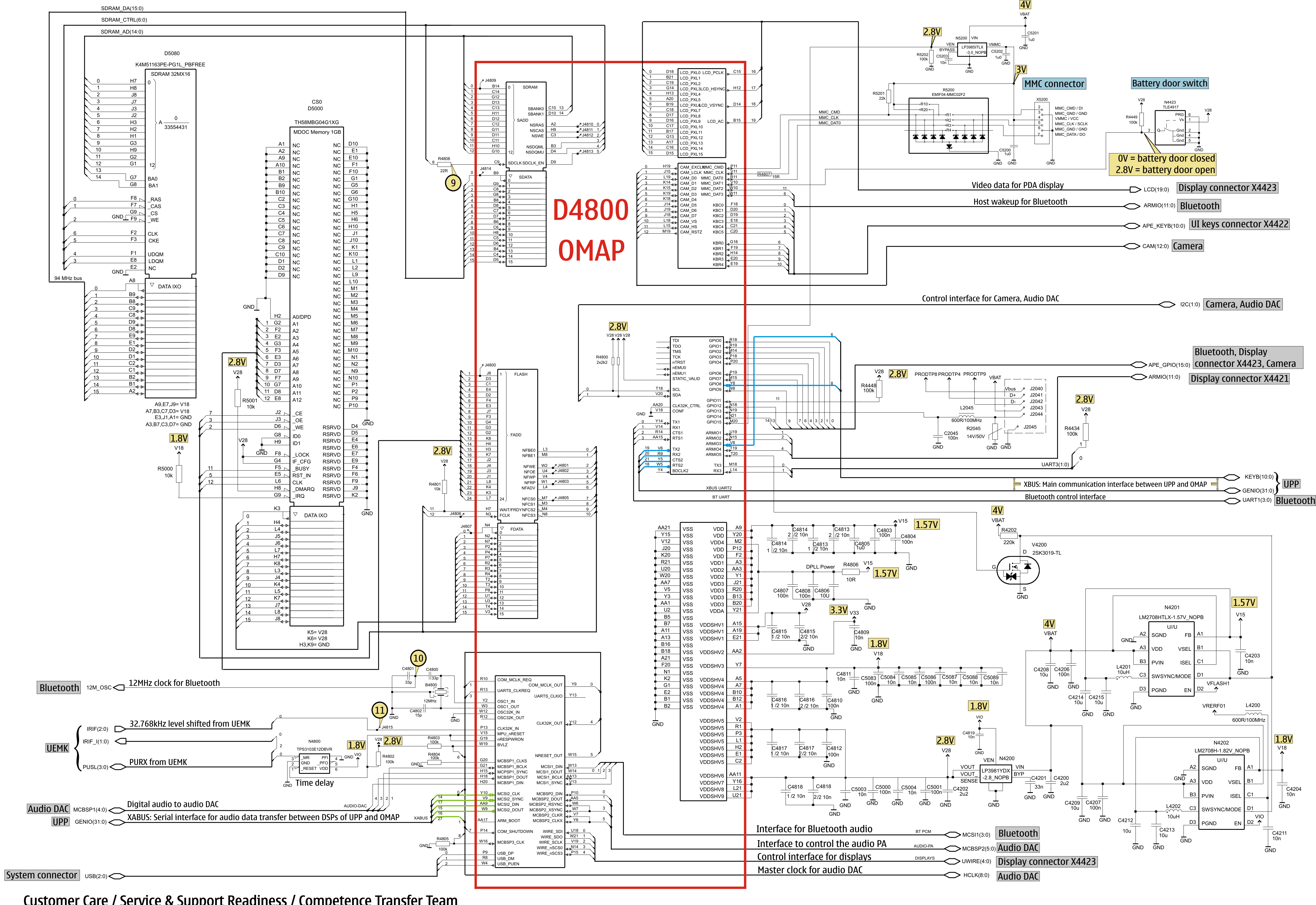

3,5mm
DC connector
Pop-Port System Connector
Charge
Charge GND
Charge
Shielding GND
Charge GND
ACI
Vout
USB Vbus
USB D+
USB D-
Data GND
XMICN
XMICP
XEARN
XEARP
XEARRN
XEARRP
Shielding GND
CHARGER(4:0)
UEMK
4V
Accessory Regulator
VBAT
2.8V with connected accessory
1.8V if enabled
GENIO(31:0)
UPP
2.8V
Connected to J2060
USB Regulator
5V
3.3V
2.8V
APE_GPIO(15:0)
OMAP
USB(2:0)
XAUDIO(17:0)
UEMK
FMANT
FM radio
XEAR(3:0)
Audio amplifier


Connectors
System connector, Audio DAC, FM radio
System connector
UEMK
Microphone
Vibra
Display connector X4421
SIM
UPP, OMAP
OMAP
J2060
System connector
UPP
UPP
RF-part
Battery connector
UPP
Zocus
RF-part
RF-part
RF-part
4V
0.5V
2.8V
1.8V
1.57V
2.8V
2.8V
2.8V
1.8V
2.8V
2.8V
1.35V
4V
4.7V
2.8V

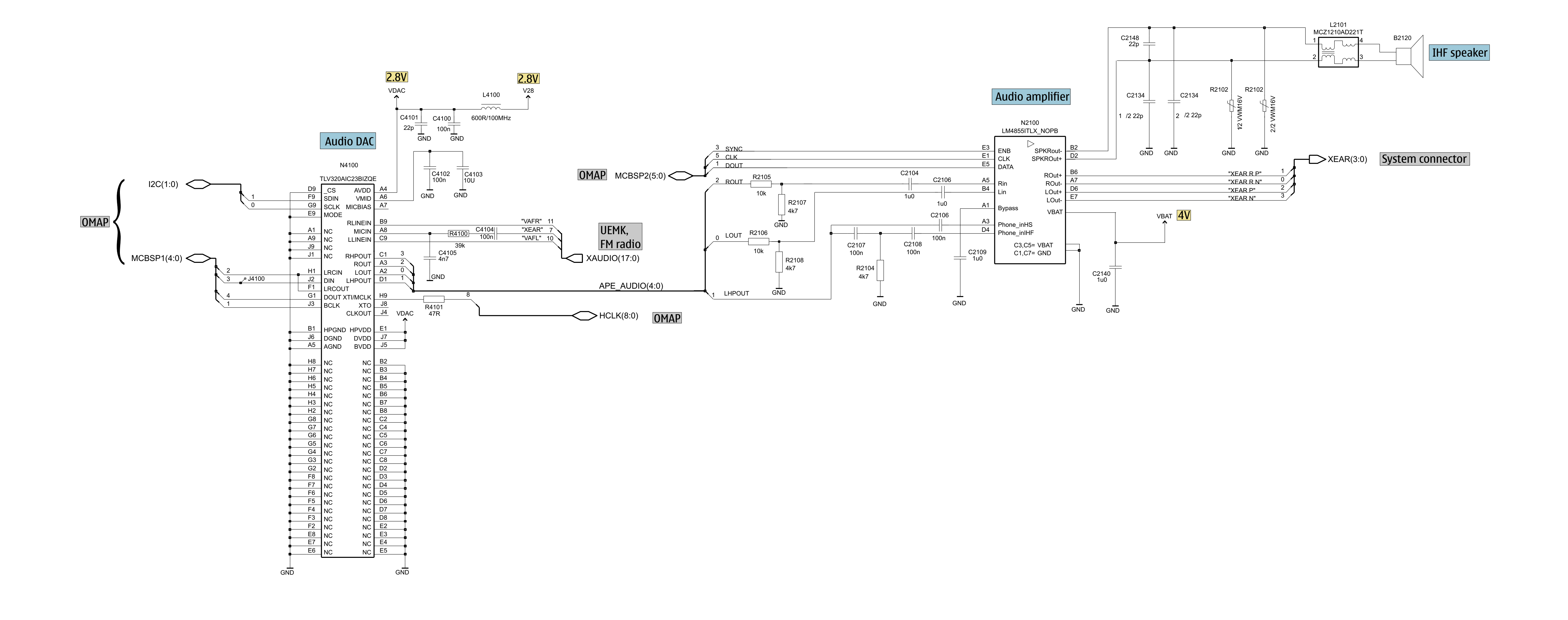

Pulses between 0V and 1.8V in normal mode
1.8V in local /test mode
UPP
D2800
UPP8M_V3.5_F751542I_PBFREE
Flash
D3000
S29NS032J0LBFW003
FLASHM 2Mx16
RF-part, OMAP, System connector, FM radio
GENIO(31:0)
1.57V
VCORE
1.8V
VIO
VBAT
VPP
PRODTP6
Connected to J2060
MEMADDA(15:0)
MEMAD(24:16)
MEMCONT(9:0)
PUSL(3:0)
AUDIODATA(3:0)
AUDUEMCTRL(3:0)
IACCDIF(5:0)
RFCONVCTRL(2:0)
RFCONVDA(5:0)
UEMK
RFICCTRL(2:0)
RFCLK
RF-part
KEYB(10:0)
OMAP
= XBUS lines
= XABUS lines

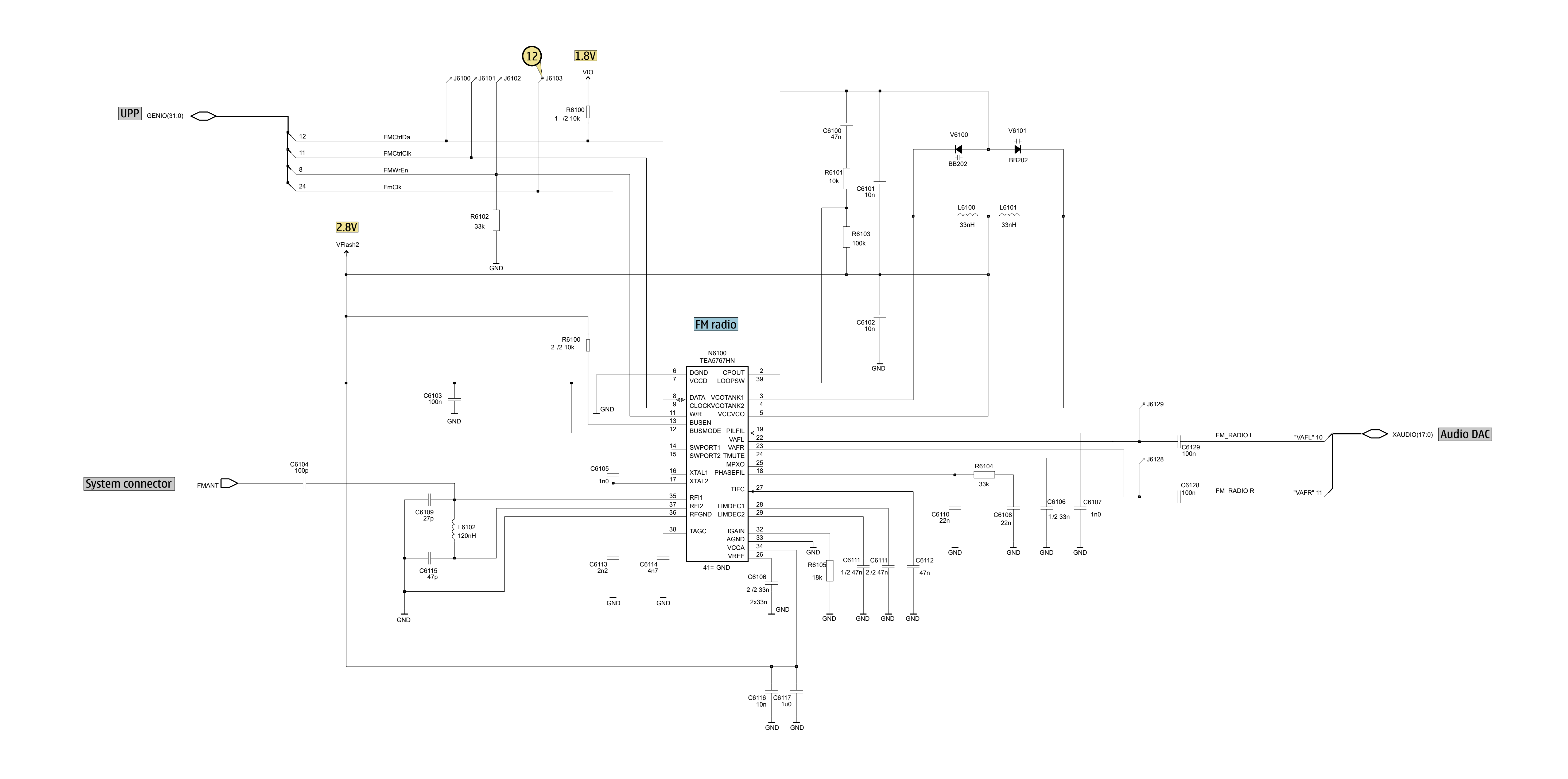


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FLASH_DA(15:0)
FLASH_CTRL(14:0)
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ape1510
APE_GPIO(15:0)
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I2C(1:0)
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ape1510
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MCSI1(3:0)
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LPRFCLK
APE_POWER
ape1510
APE_GPIO(15:0)
ARMIO(11:0)
SMPSCTRL(2:0)
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APE_UI
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APE_GPIO(15:0)
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EAR(1:0)
PWRONX
HCLK(8:0)
PUSL(3:0)
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ARMIO(11:0)
I2C(1:0)
EAR(1:0)
PWRONX
LPRFCLK
AUDIO(6:0)

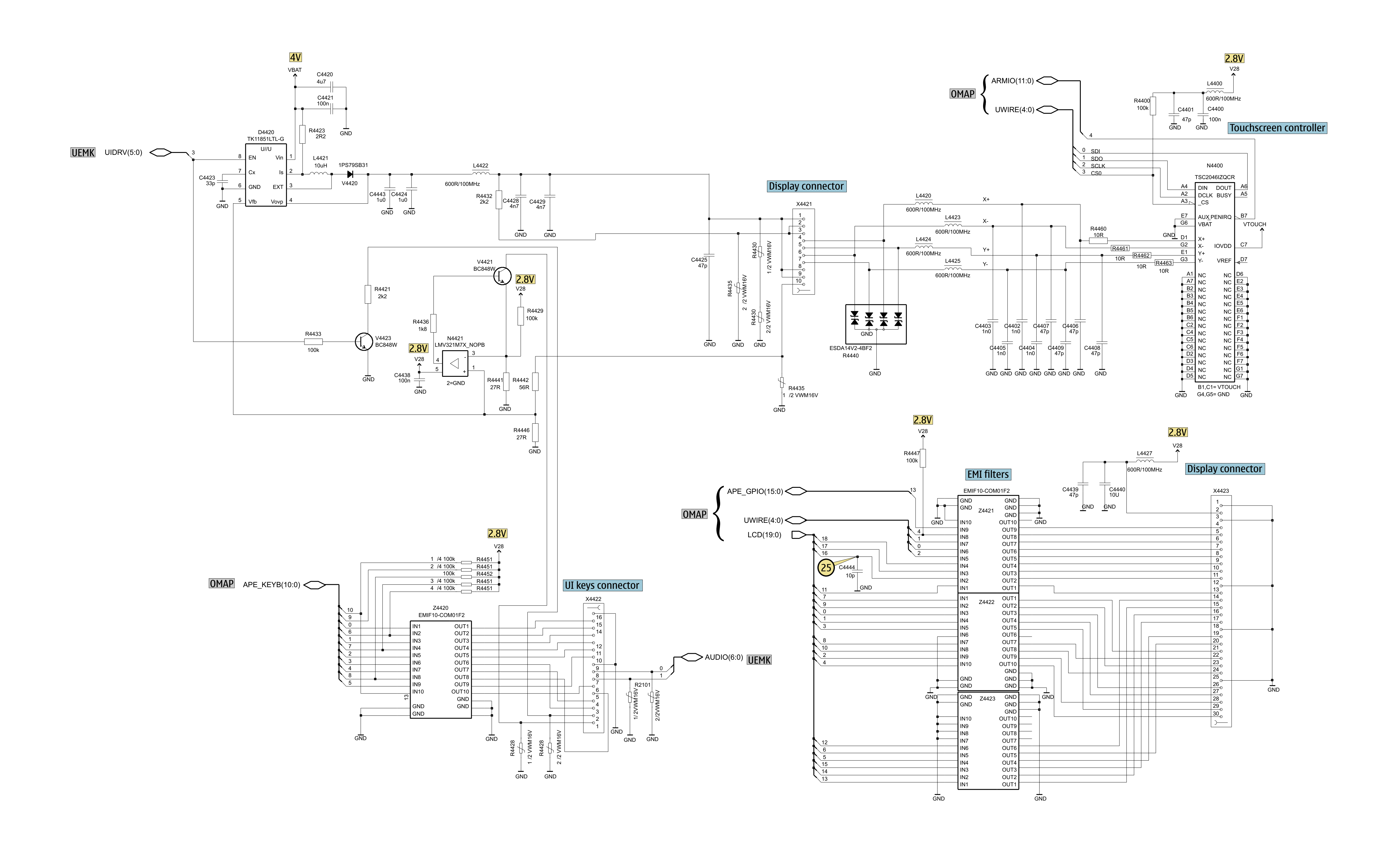


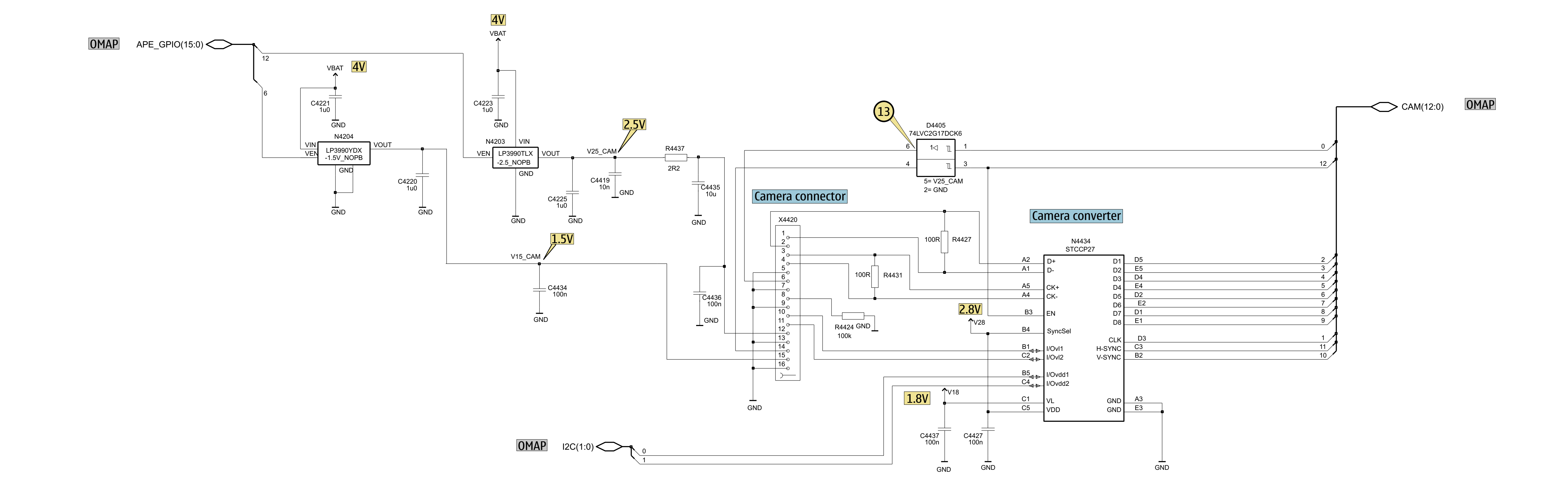
D4800
OMAP
SDRAM_DA(15:0)
SDRAM_CTRL(6:0)
SDRAM_AD(14:0)
D5080
K4M51163PE-PG1L_PBFREE
SDRAM 32MX16
CS0
D5000
TH58MBG04G1XG
MDOC Memory 1GB
94 MHz bus
DATA IXO
FLASH
FADD
FDATA
SDATA
SDRAM
4V
2.8V
3V
1.8V
1.57V
3.3V
MMC connector
Battery door switch
0V = battery door closed
2.8V = battery door open
Video data for PDA display
LCD(19:0)
Display connector X4423
Host wakeup for Bluetooth
ARMIO(11:0)
Bluetooth
APE_KEYB(10:0)
UI keys connector X4422
CAM(12:0)
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Control interface for Camera, Audio DAC
I2C(1:0)
Camera, Audio DAC
APE_GPIO(15:0)
Bluetooth, Display connector X4423, Camera
Display connector X4421
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GENIO(31:0)
UPP
Bluetooth control interface
UART1(3:0)
12MHz clock for Bluetooth
12M_OSC
32.768kHz level shifted from UEMK
IRIF(2:0)
IRIF_I(1:0)
UEMK
PURX from UEMK
PUSL(3:0)
Time delay
Digital audio to audio DAC
Audio DAC
MCBSP1(4:0)
XABUS: Serial interface for audio data transfer between DSPs of UPP and OMAP
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System connector
USB(2:0)
Interface for Bluetooth audio
MCSI1(3:0)
Interface to control the audio PA
MCBSP2(5:0)
Control interface for displays
UWIRE(4:0)
Master clock for audio DAC
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N4201
LM2708HTLX-1.57V_NOPB
N4202
LM2708H-1.82V_NOPB
N4200
LP3981YDX-2.8_NOPB
N5200
LP3985ITLX-3.0_NOPB
V4200
2SK3019-TL
N4423
TLE4917
N4800
TPS3103E12DBVR
DPLL Power
9
10
11


Audio DAC
Audio amplifier
IHF speaker
System connector
UEMK,
FM radio
OMAP
2.8V
4V
N4100
TLV320AIC23BIZQE
N2100
LM4855ITLX_NOPB
L2101
MCZ1210AD221T
B2120
APE_AUDIO(4:0)
XEAR(3:0)
XAUDIO(17:0)
HCLK(8:0)
MCBSP1(4:0)
MCBSP2(5:0)
I2C(1:0)

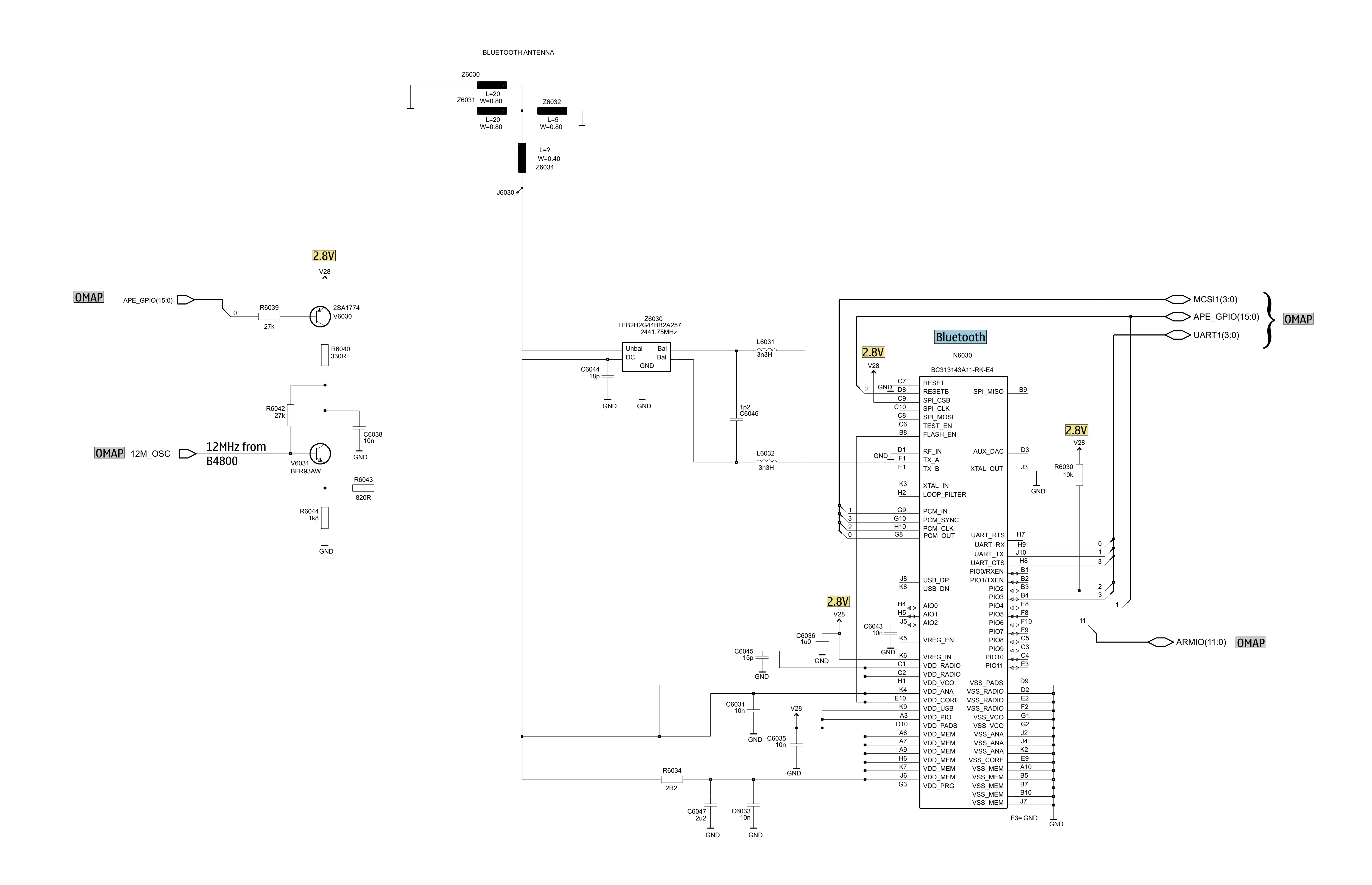


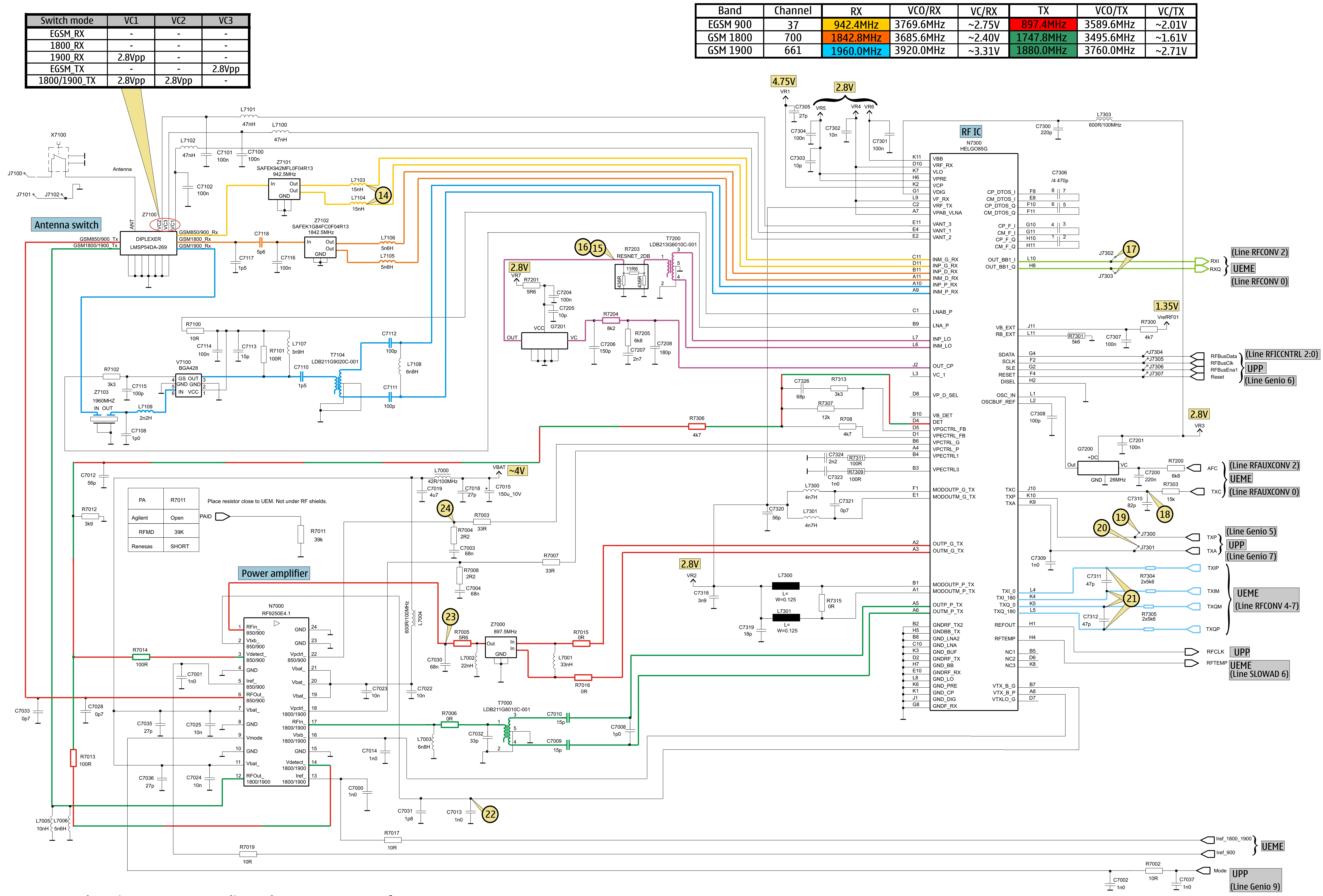
UPP
GENIO(31:0)
FMCtrlDa
FMCtrlClk
FMWrEn
FmClk
12
1.8V
VIO
J6100
J6101
J6102
J6103
R6100
R6102
33k
2.8V
VFlash2
FM radio
N6100
TEA5767HN
C6100
47n
R6101
10k
C6101
10n
R6103
100k
C6102
10n
V6100
V6101
BB202
L6100
L6101
33nH
C6103
100n
System connector
FMANT
C6104
100p
C6109
27p
L6102
120nH
C6115
47p
C6105
1n0
C6113
2n2
C6114
4n7
C6106
R6105
18k
C6111
C6112
47n
R6104
33k
C6110
22n
C6108
22n
C6107
1n0
J6129
J6128
C6129
100n
C6128
100n
FM_RADIO L
FM_RADIO R
"VAFL" 10
"VAFR" 11
XAUDIO(17:0)
Audio DAC
C6116
10n
C6117
1u0
GND


4V
UEMK
UIDRV(5:0)
D4420
TK11851LTL-G
R4423
2R2
L4421
10uH
1PS79SB31
V4420
C4420
4u7
C4421
100n
C4423
33p
C4443
1u0
C4424
1u0
L4422
600R/100MHz
R4432
2k2
C4428
4n7
C4429
4n7
V4421
BC848W
2.8V
R4421
2k2
R4429
100k
R4436
1k8
N4421
LMV321M7X_NOPB
R4433
100k
V4423
BC848W
C4438
100n
R4441
27R
R4442
56R
R4446
27R
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C4425
47p
R4435
R4430
1/2 VWM16V
2/2 VWM16V
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L4423
L4424
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100k
C4401
47p
L4400
600R/100MHz
C4400
100n
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TSC2046IZQCR
R4460
10R
R4461
R4462
R4463
VTOUCH
B1,C1= VTOUCH
G4,G5= GND
C4403
1n0
C4402
1n0
C4405
1n0
C4404
1n0
C4407
47p
C4409
47p
C4406
47p
C4408
47p
2.8V
R4447
100k
EMI filters
EMIF10-COM01F2
Z4421
Z4422
Z4423
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UWIRE(4:0)
LCD(19:0)
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10p
25
L4427
600R/100MHz
C4439
47p
C4440
10U
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X4423
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R4451
R4452
Z4420
EMIF10-COM01F2
UI keys connector
X4422
AUDIO(6:0)
UEMK
R2101
R4428
1/2 VWM16V
2/2 VWM16V



OMAP
APE_GPIO(15:0)
4V
VBAT
N4204
LP3990YDX
-1.5V_NOPB
N4203
LP3990TLX
-2.5_NOPB
2.5V
V25_CAM
R4437
2R2
1.5V
V15_CAM
13
D4405
74LVC2G17DCK6
5= V25_CAM
2= GND
Camera connector
X4420
Camera converter
N4434
STCCP27
CAM(12:0)
2.8V
V28
1.8V
V18
I2C(1:0)
GND

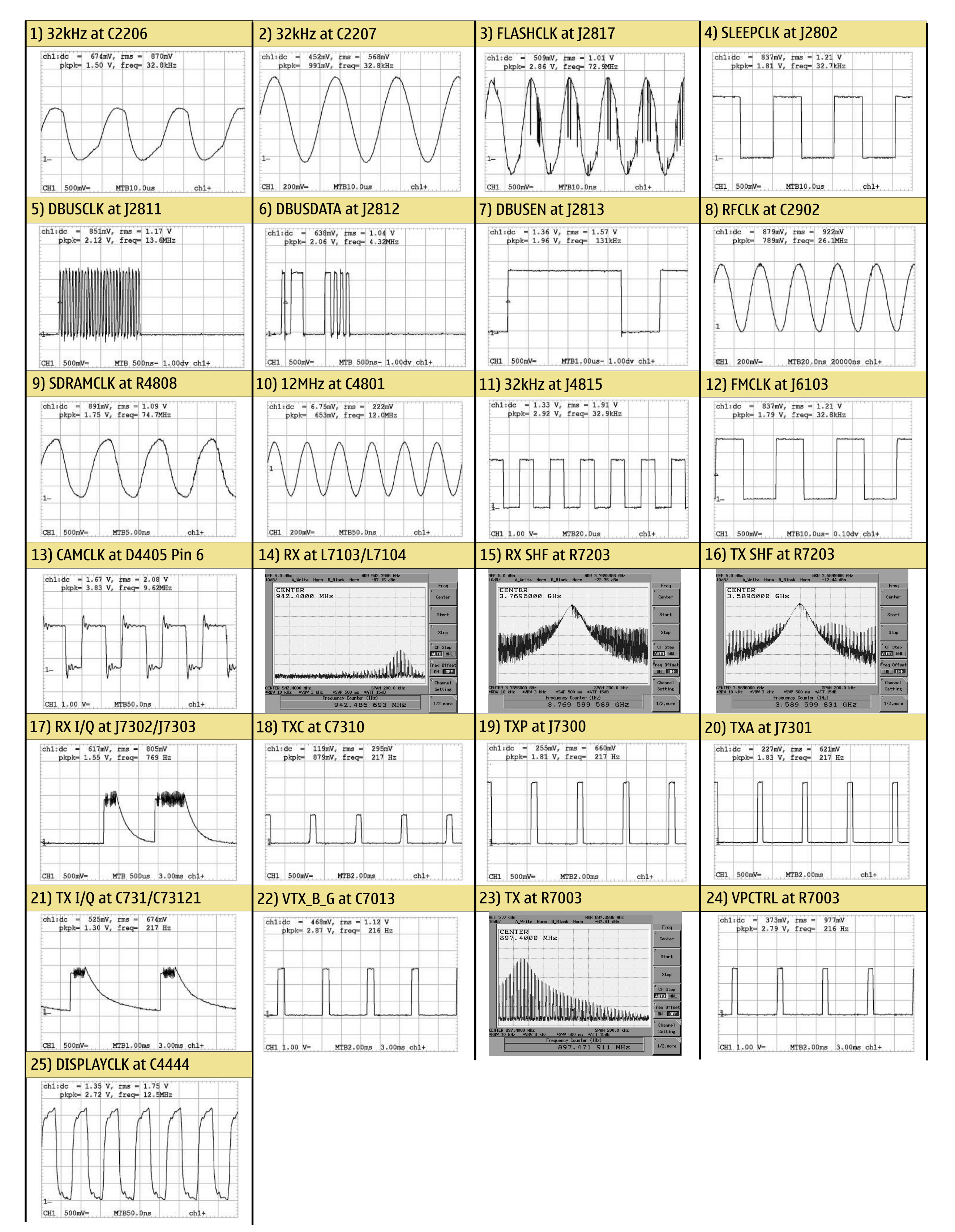

BLUETOOTH ANTENNA
Z6030
Z6031
Z6032
Z6034
J6030
2.8V
V28
OMAP
APE_GPIO(15:0)
R6039
27k
2SA1774
V6030
R6040
330R
R6042
27k
C6038
10n
OMAP
12M_OSC
12MHz from
B4800
V6031
BFR93AW
R6043
820R
R6044
1k8
GND
Z6030
LFB2H2G44BB2A257
2441.75MHz
C6044
18p
L6031
3n3H
L6032
3n3H
C6046
1p2
Bluetooth
N6030
BC313143A11-RK-E4
MCSI1(3:0)
APE_GPIO(15:0)
UART1(3:0)
OMAP
ARMIO(11:0)
OMAP
R6030
10k
C6036
1u0
C6043
10n
C6045
15p
C6031
10n
C6035
10n
R6034
2R2
C6047
2u2
C6033
10n
F3= GND



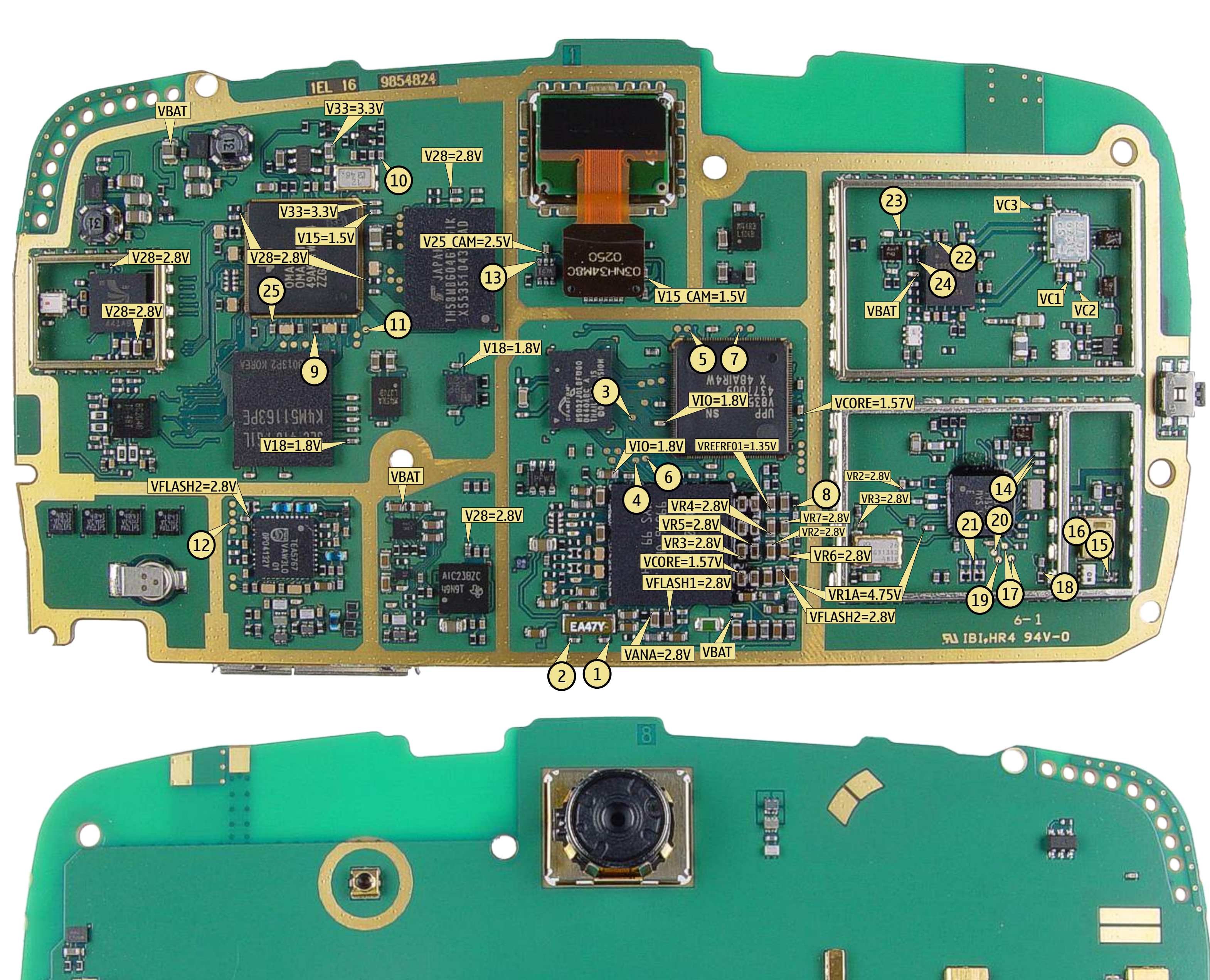
Switch mode	VC1	VC2	VC3
EGSM_RX	-	-	-
1800_RX	-	-	-
1900_RX	2.8Vpp	-	-
EGSM_TX	-	-	2.8Vpp
1800/1900_TX	2.8Vpp	2.8Vpp	-

Band	Channel	RX	VCO/RX	VC/RX	TX	VCO/TX	VC/TX
EGSM 900	37	942.4MHz	3769.6MHz	~2.75V	897.4MHz	3589.6MHz	~2.01V
GSM 1800	700	1842.8MHz	3685.6MHz	~2.40V	1747.8MHz	3495.6MHz	~1.61V
GSM 1900	661	1960.0MHz	3920.0MHz	~3.31V	1880.0MHz	3760.0MHz	~2.71V

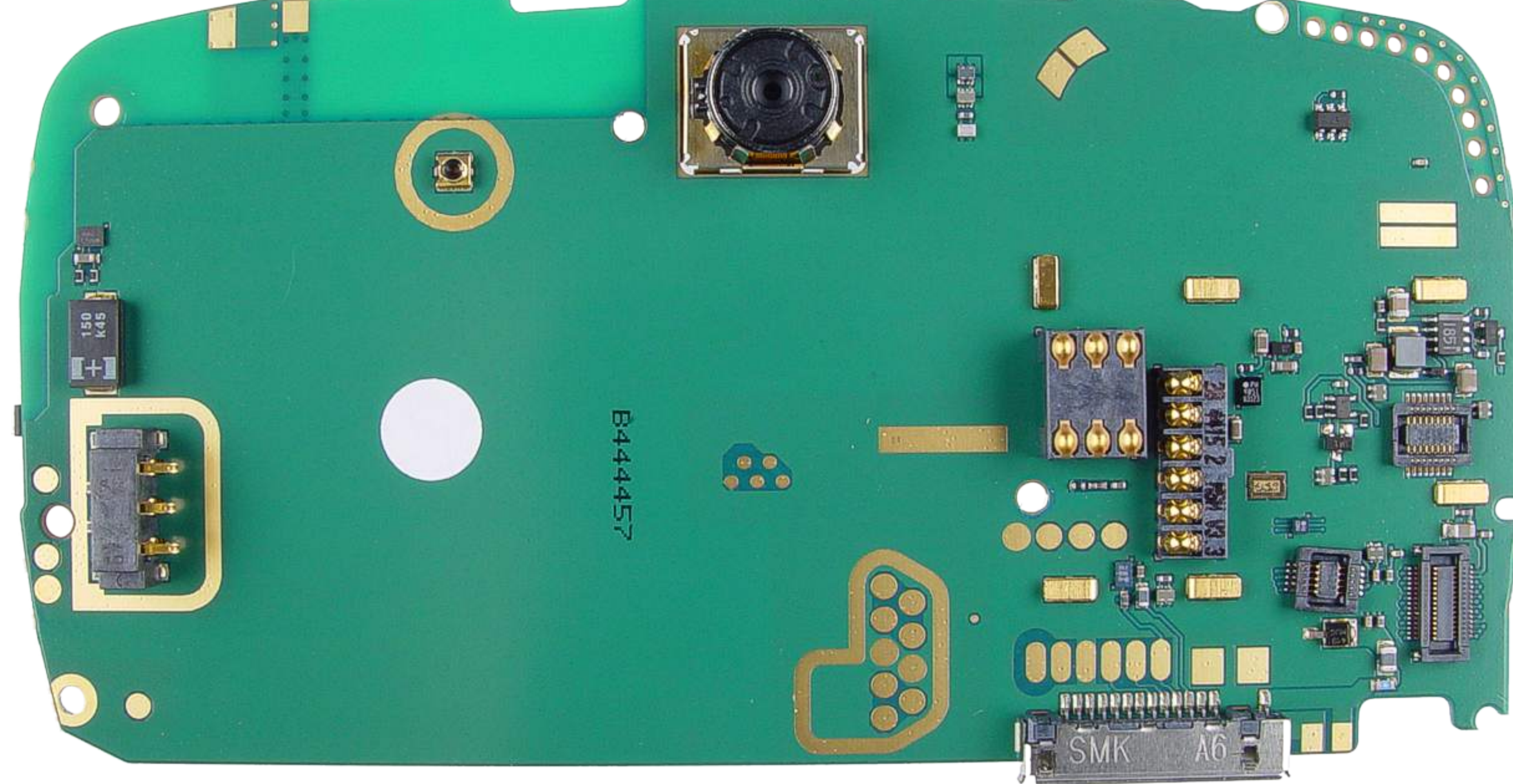
PA	R7011
Agilent	Open
RFMD	39K
Renesas	SHORT

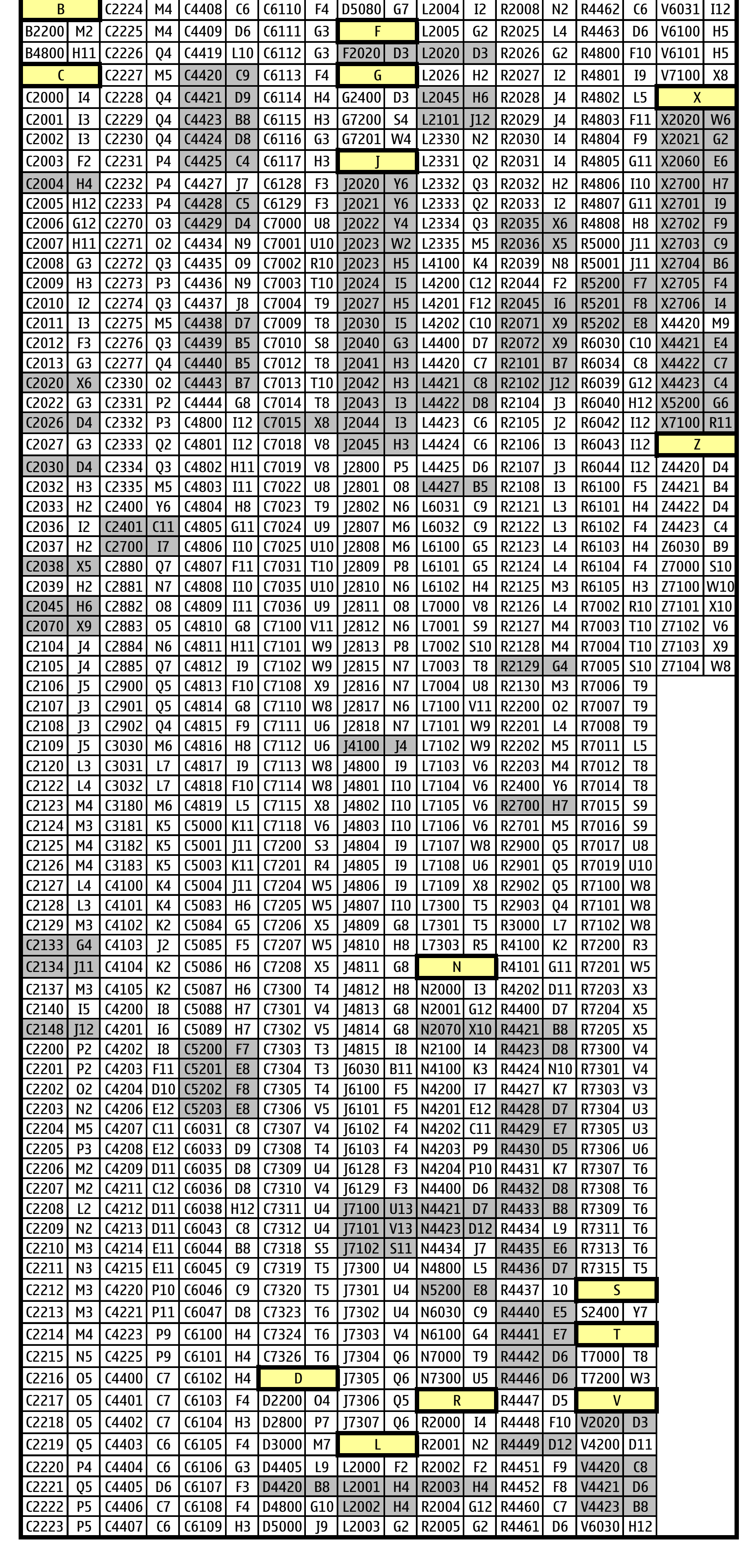


1) 32kHz at C2206
2) 32kHz at C2207
3) FLASHCLK at J2817
4) SLEEPCLK at J2802
5) DBUSCLK at J2811
6) DBUSDATA at J2812
7) DBUSEN at J2813
8) RFCLK at C2902
9) SDRAMCLK at R4808
10) 12MHz at C4801
11) 32kHz at J4815
12) FMCLK at J6103
13) CAMCLK at D4405 Pin 6
14) RX at L7103/L7104
15) RX SHF at R7203
16) TX SHF at R7203
17) RX I/Q at J7302/J7303
18) TXC at C7310
19) TXP at J7300
20) TXA at J7301
21) TX I/Q at C731/C73121
22) VTX_B_G at C7013
23) TX at R7003
24) VPCTRL at R7003
25) DISPLAYCLK at C4444



VBAT
V33=3.3V
V28=2.8V
V33=3.3V
V15=1.5V
V28=2.8V
V25_CAM=2.5V
V15_CAM=1.5V
V28=2.8V
V28=2.8V
V18=1.8V
VIO=1.8V
V18=1.8V
VIO=1.8V
VREFRF01=1.35V
VCORE=1.57V
VFLASH2=2.8V
VBAT
V28=2.8V
VR4=2.8V
VR5=2.8V
VR3=2.8V
VCORE=1.57V
VFLASH1=2.8V
VANA=2.8V
VBAT
VR7=2.8V
VR2=2.8V
VR6=2.8V
VR1A=4.75V
VFLASH2=2.8V
VR2=2.8V
VR3=2.8V
VC3
VBAT
VC1
VC2





B		C2224	M4	C4408	C6	C6110	F4	D5080	G7	L2004	I2	R2008	N2	R4462	C6	V6031	I12
B2200	M2	C2225	M4	C4409	D6	C6111	G3	F		L2005	G2	R2025	L4	R4463	D6	V6100	H5
B4800	H11	C2226	Q4	C4419	L10	C6112	G3	F2020	D3	L2020	D3	R2026	G2	R4800	F10	V6101	H5
C		C2227	M5	C4420	C9	C6113	F4	G		L2026	H2	R2027	I2	R4801	I9	V7100	X8
C2000	I4	C2228	Q4	C4421	D9	C6114	H4	G2400	D3	L2045	H6	R2028	J4	R4802	L5	X	
C2001	I3	C2229	Q4	C4423	B8	C6115	H3	G7200	S4	L2101	J12	R2029	J4	R4803	F11	X2020	W6
C2002	I3	C2230	Q4	C4424	D8	C6116	G3	G7201	W4	L2330	N2	R2030	I4	R4804	F9	X2021	G2
C2003	F2	C2231	P4	C4425	C4	C6117	H3	J		L2331	Q2	R2031	I4	R4805	G11	X2060	E6
C2004	H4	C2232	P4	C4427	J7	C6128	F3	J2020	Y6	L2332	Q3	R2032	H2	R4806	I10	X2700	H7
C2005	H12	C2233	P4	C4428	C5	C6129	F3	J2021	Y6	L2333	Q2	R2033	I2	R4807	G11	X2701	I9
C2006	G12	C2270	O3	C4429	D4	C7000	U8	J2022	Y4	L2334	Q3	R2035	X6	R4808	H8	X2702	F9
C2007	H11	C2271	O2	C4434	N9	C7001	U10	J2023	W2	L2335	M5	R2036	X5	R5000	J11	X2703	C9
C2008	G3	C2272	Q3	C4435	O9	C7002	R10	J2023	H5	L4100	K4	R2039	N8	R5001	J11	X2704	B6
C2009	H3	C2273	P3	C4436	N9	C7003	T10	J2024	I5	L4200	C12	R2044	F2	R5200	F7	X2705	F4
C2010	I2	C2274	Q3	C4437	J8	C7004	T9	J2027	H5	L4201	F12	R2045	I6	R5201	F8	X2706	I4
C2011	I3	C2275	M5	C4438	D7	C7009	T8	J2030	I5	L4202	C10	R2071	X9	R5202	E8	X4420	M9
C2012	F3	C2276	Q3	C4439	B5	C7010	S8	J2040	G3	L4400	D7	R2072	X9	R6030	C10	X4421	E4
C2013	G3	C2277	Q4	C4440	B5	C7012	T8	J2041	H3	L4420	C7	R2101	B7	R6034	C8	X4422	C7
C2020	X6	C2330	O2	C4443	B7	C7013	T10	J2042	H3	L4421	C8	R2102	J12	R6039	G12	X4423	C4
C2022	G3	C2331	P2	C4444	G8	C7014	T8	J2043	I3	L4422	D8	R2104	J3	R6040	H12	X5200	G6
C2026	D4	C2332	P3	C4800	I12	C7015	X8	J2044	I3	L4423	C6	R2105	J2	R6042	I12	X7100	R11
C2027	G3	C2333	Q2	C4801	I12	C7018	V8	J2045	H3	L4424	C6	R2106	I3	R6043	I12	Z	
C2030	D4	C2334	Q3	C4802	H11	C7019	V8	J2800	P5	L4425	D6	R2107	J3	R6044	I12	Z4420	D4
C2032	H3	C2335	M5	C4803	I11	C7022	U8	J2801	O8	L4427	B5	R2108	I3	R6100	F5	Z4421	B4
C2033	H2	C2400	Y6	C4804	H8	C7023	T9	J2802	N6	L6031	C9	R2121	L3	R6101	H4	Z4422	D4
C2036	I2	C2401	C11	C4805	G11	C7024	U9	J2807	M6	L6032	C9	R2122	L3	R6102	F4	Z4423	C4
C2037	H2	C2700	I7	C4806	I10	C7025	U10	J2808	M6	L6100	G5	R2123	L4	R6103	H4	Z6030	B9
C2038	X5	C2880	Q7	C4807	F11	C7031	T10	J2809	P8	L6101	G5	R2124	L4	R6104	F4	Z7000	S10
C2039	H2	C2881	N7	C4808	I10	C7035	U10	J2810	N6	L6102	H4	R2125	M3	R6105	H3	Z7100	W10
C2045	H6	C2882	O8	C4809	I11	C7036	U9	J2811	O8	L7000	V8	R2126	L4	R7002	R10	Z7101	X10
C2070	X9	C2883	O5	C4810	G8	C7100	V11	J2812	N6	L7001	S9	R2127	M4	R7003	T10	Z7102	V6
C2104	J4	C2884	N6	C4811	H11	C7101	W9	J2813	P8	L7002	S10	R2128	M4	R7004	T10	Z7103	X9
C2105	J4	C2885	Q7	C4812	I9	C7102	W9	J2815	N7	L7003	T8	R2129	G4	R7005	S10	Z7104	W8
C2106	J5	C2900	Q5	C4813	F10	C7108	X9	J2816	N7	L7004	U8	R2130	M3	R7006	T9		
C2107	J3	C2901	Q5	C4814	G8	C7110	W8	J2817	N6	L7100	V11	R2200	O2	R7007	T9		
C2108	J3	C2902	Q4	C4815	F9	C7111	U6	J2818	N7	L7101	W9	R2201	L4	R7008	T9		
C2109	J5	C3030	M6	C4816	H8	C7112	U6	J4100	J4	L7102	W9	R2202	M5	R7011	L5		
C2120	L3	C3031	L7	C4817	I9	C7113	W8	J4800	I9	L7103	V6	R2203	M4	R7012	T8		
C2122	L4	C3032	L7	C4818	F10	C7114	W8	J4801	I10	L7104	V6	R2400	Y6	R7014	T8		
C2123	M4	C3180	M6	C4819	L5	C7115	X8	J4802	I10	L7105	V6	R2700	H7	R7015	S9		
C2124	M3	C3181	K5	C5000	K11	C7118	V6	J4803	I10	L7106	V6	R2701	M5	R7016	S9		
C2125	M4	C3182	K5	C5001	J11	C7200	S3	J4804	I9	L7107	W8	R2900	Q5	R7017	U8		
C2126	M4	C3183	K5	C5003	K11	C7201	R4	J4805	I9	L7108	U6	R2901	Q5	R7019	U10		
C2127	L4	C4100	K4	C5004	J11	C7204	W5	J4806	I9	L7109	X8	R2902	Q5	R7100	W8		
C2128	L3	C4101	K4	C5083	H6	C7205	W5	J4807	I10	L7300	T5	R2903	Q4	R7101	W8		
C2129	M3	C4102	K2	C5084	G5	C7206	X5	J4809	G8	L7301	T5	R3000	L7	R7102	W8		
C2133	G4	C4103	J2	C5085	F5	C7207	W5	J4810	H8	L7303	R5	R4100	K2	R7200	R3		
C2134	J11	C4104	K2	C5086	H6	C7208	X5	J4811	G8	N		R4101	G11	R7201	W5		
C2137	M3	C4105	K2	C5087	H6	C7300	T4	J4812	H8	N2000	I3	R4202	D11	R7203	X3		
C2140	I5	C4200	I8	C5088	H7	C7301	V4	J4813	G8	N2001	G12	R4400	D7	R7204	X5		
C2148	J12	C4201	I6	C5089	H7	C7302	V5	J4814	G8	N2070	X10	R4421	B8	R7205	X5		
C2200	P2	C4202	I8	C5200	F7	C7303	T3	J4815	I8	N2100	I4	R4423	D8	R7300	V4		
C2201	P2	C4203	F11	C5201	E8	C7304	T3	J6030	B11	N4100	K3	R4424	N10	R7301	V4		
C2202	O2	C4204	D10	C5202	F8	C7305	T4	J6100	F5	N4200	I7	R4427	K7	R7303	V3		
C2203	N2	C4206	E12	C5203	E8	C7306	V5	J6101	F5	N4201	E12	R4428	D7	R7304	U3		
C2204	M5	C4207	C11	C6031	C8	C7307	V4	J6102	F4	N4202	C11	R4429	E7	R7305	U3		
C2205	P3	C4208	E12	C6033	D9	C7308	T4	J6103	F4	N4203	P9	R4430	D5	R7306	U6		
C2206	M2	C4209	D11	C6035	D8	C7309	U4	J6128	F3	N4204	P10	R4431	K7	R7307	T6		
C2207	M2	C4211	C12	C6036	D8	C7310	V4	J6129	F3	N4400	D6	R4432	D8	R7308	T6		
C2208	L2	C4212	D11	C6038	H12	C7311	U4	J7100	U13	N4421	D7	R4433	B8	R7309	T6		
C2209	N2	C4213	D11	C6043	C8	C7312	U4	J7101	V13	N4423	D12	R4434	L9	R7311	T6		
C2210	M3	C4214	E11	C6044	B8	C7318	S5	J7102	S11	N4434	J7	R4435	E6	R7313	T6		
C2211	N3	C4215	E11	C6045	C9	C7319	T5	J7300	U4	N4800	L5	R4436	D7	R7315	T5		
C2212	M3	C4220	P10	C6046	C9	C7320	T5	J7301	U4	N5200	E8	R4437	10	S			
C2213	M3	C4221	P11	C6047	D8	C7323	T6	J7302	U4	N6030	C9	R4440	E5	S2400	Y7		
C2214	M4	C4223	P9	C6100	H4	C7324	T6	J7303	V4	N6100	G4	R4441	E7	T			
C2215	N5	C4225	P9	C6101	H4	C7326	T6	J7304	Q6	N7000	T9	R4442	D6	T7000	T8		
C2216	O5	C4400	C7	C6102	H4	D		J7305	Q6	N7300	U5	R4446	D6	T7200	W3		
C2217	O5	C4401	C7	C6103	F4	D2200	O4	J7306	Q5	R		R4447	D5	V			
C2218	O5	C4402	C7	C6104	H3	D2800	P7	J7307	Q6	R2000	I4	R4448	F10	V2020	D3		
C2219	Q5	C4403	C6	C6105	F4	D3000	M7	L		R2001	N2	R4449	D12	V4200	D11		
C2220	P4	C4404	C6	C6106	G3	D4405	L9	L2000	F2	R2002	F2	R4451	F9	V4420	C8		
C2221	Q5	C4405	D6	C6107	F3	D4420	B8	L2001	H4	R2003	H4	R4452	F8	V4421	D6		
C2222	P5	C4406	C7	C6108	F4	D4800	G10	L2002	H4	R2004	G12	R4460	C7	V4423	B8		
C2223	P5	C4407	C6	C6109	H3	D5000	J9	L2003	G2	R2005	G2	R4461	D6	V6030	H12		

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Bottom